

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA INTEGRATED – SEMESTER IX- EXAMINATION –SUMMER-2025

Subject Code: 2698607

Date: 10/06/2025

Subject Name: Internet of Things

Time:02:30 PM TO 05:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of simple calculators and non-programmable scientific calculators are permitted.

Q.1 (a) What is M2M communication? Why M2M has shifted to the Internet of Things? **07**

(b) What is Internet of Things? What are the applications of IoT? **07**

Q.2 (a) Discuss smart health using IoT. **07**

(b) Explain layered IOT architecture using a figure. **07**

OR

(b) What are the security and private issues of IoT? Explain using suitable case scenario. **07**

Q.3 (a) Write a program using Arduino Uno to measure the distance of any object using Ultrasonic Sensor. **07**

(b) (i) What is CSPR and ARM? **07**

(ii) Compare the packet format of IPV4 and IPV6 while explaining all the fields appropriately.

OR

Q.3 (a) (i) Explain security concerns for smart home application. **07**

(ii) Explain various sensors and actuators & its application.

(b) (i) List and explain different types of actuators used for developing different IoT **07**

Applications.

(ii) Explain how CoAP functions. Compare it with MQTT in operational aspects.

Q.4 (a) Write a program on Arduino/Raspberry Pi to publish temperature data to MQTT broker. **07**

(b) Explain clearly the register structure of ARM. **07**

OR

Q.4 (a) Write a Program to create an interface LED/Buzzer with Arduino/Raspberry Pi and write a program to turn ON LED for 1 sec after every 2 seconds. **07**

(b) Explain Architecture and various Components of Arduino. **07**

Q.5 (a) (i) Explain Raspberry Pi Interface and PIN Configuration. **07**

(ii) Difference between Arduino, Raspberry Pi and Python.

(b) (i) Explain the practical important of XMPP and AMQP. **07**

(ii) Explain IoT challenges and Authorization Mechanism.

OR

Q.5 (a) (i) How does IoT affects in our life. **07**

(ii) Compare IoT and cyber physical system

(b) Explain the practical important of Zigbee, 6LoWPAN, RFID, NFC protocols. **07**
